

The Public Fountains of the City
of Dijon

by Henry Darcy

English Translation by
Patricia Bobeck



Life of Henry Darcy



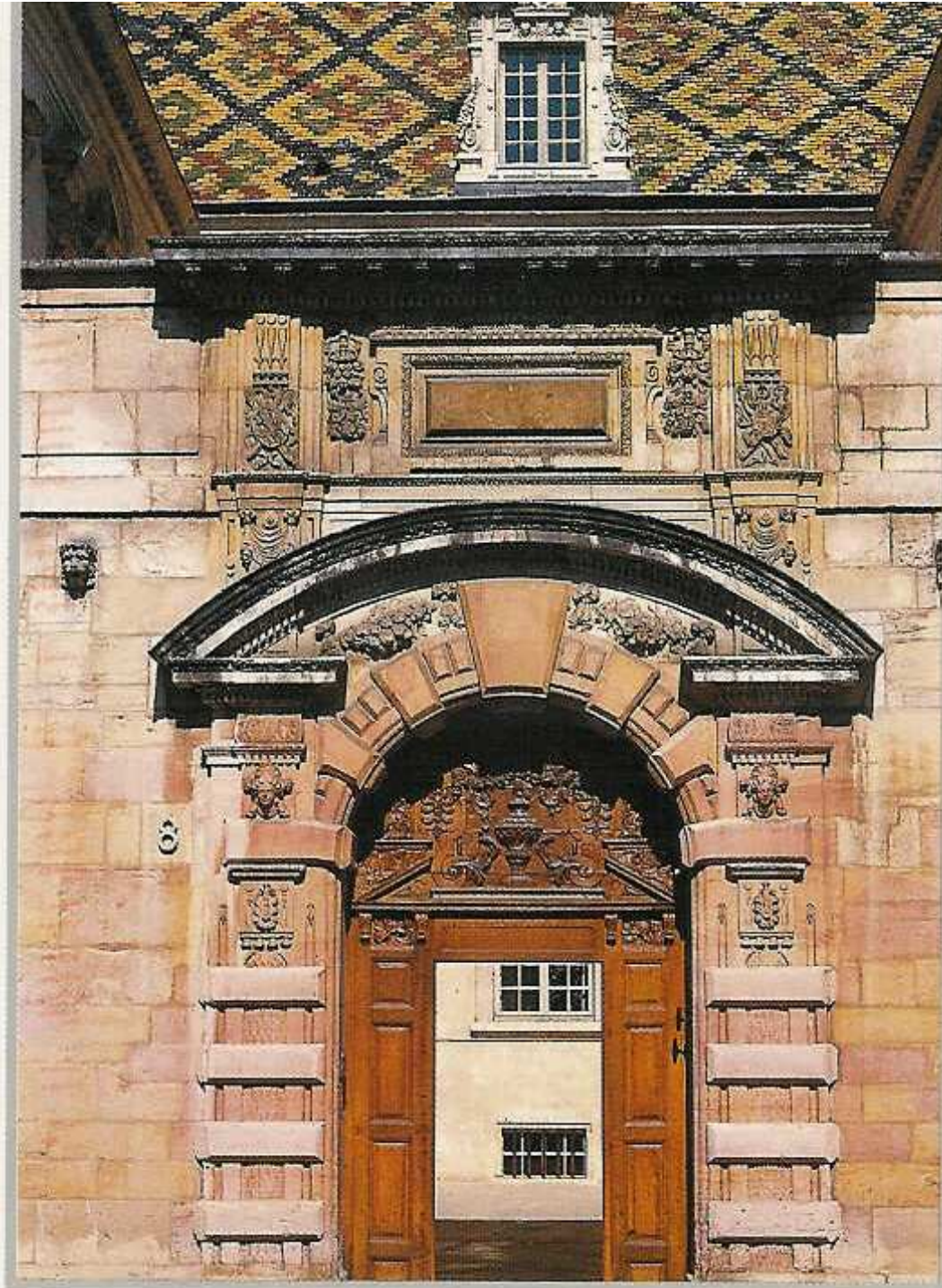
- 1803 - Born in Dijon
- 1817 - Father died
- 1821 - Entered Ecole Polytechnique
- 1823 - Entered Ecole des Ponts et Chaussées
- 1826 - Joined Corps des Ponts et Chaussées

Life of Henry Darcy

- 1827 - Appointed Engineer in Dijon
- 1828 - Married Henriette Carey
- 1832 - Gauged Rosoir Spring during drought
- 1834 - Proposed water supply system to city
- 1839-40 - Built aqueduct & water system
- 1843 - Proposed railroad route through Dijon
- 1845 - Supervised construction of Blaisy Tunnel
- 1848 - Chief Engineer of Dept. of Côte d'Or



Rue des Forges, Dijon



Hotel de Vogüé,
Darcy's residence

Note the
Burgundian style
tile roof

Life of Henry Darcy

- 1848 - Revolution
- 1849 - Chief of Municipal Service in Paris, studied pipes
- 1851-2 - Consultant to Brussels
- 1852 - Studied macadam roads in England
- 1855 - Retired to Dijon, conducted Darcy's Law experiments
- 1857 - Nominated to Academy of Sciences
- 1858 - Died in Paris



French Governments 1789-1870

- 1789 Revolution
- 1792 First Republic
- 1799 - 1804 Consulat
- 1804 - 1815 First Empire - Napoleon
- 1815 - 1830 Restoration - Louis XVIII - Charles X
- 1830 - 1848 Bourgeois Monarchy - Louis-Philippe
- 1848 - 1851 Second Republic
- 1852 - 1870 Second Empire - Napoleon III

The Public Fountains of the City of Dijon

- Published in 1856 as engineer's guide for construction of a water supply system.
- 647 pages + 28 plate atlas.
- 4 Parts, 8 Appendices.

Darcy's Philosophy of Water

- “As much as possible, one should favor the free drawing of water because it is necessary for public health. A city that cares for the interest of the poor class should not limit their water, just as daytime and light are not limited.” (p. 42)

Purpose of Fountains

- Abundant, pure, free water
 - Domestic use: day and night
 - Street washing
 - Fire fighting
- Fountains 100 m apart

Part 1.Dijon's Water Sources

Groundwater

Springs - Appendix A

Artesian Well

Surface water:

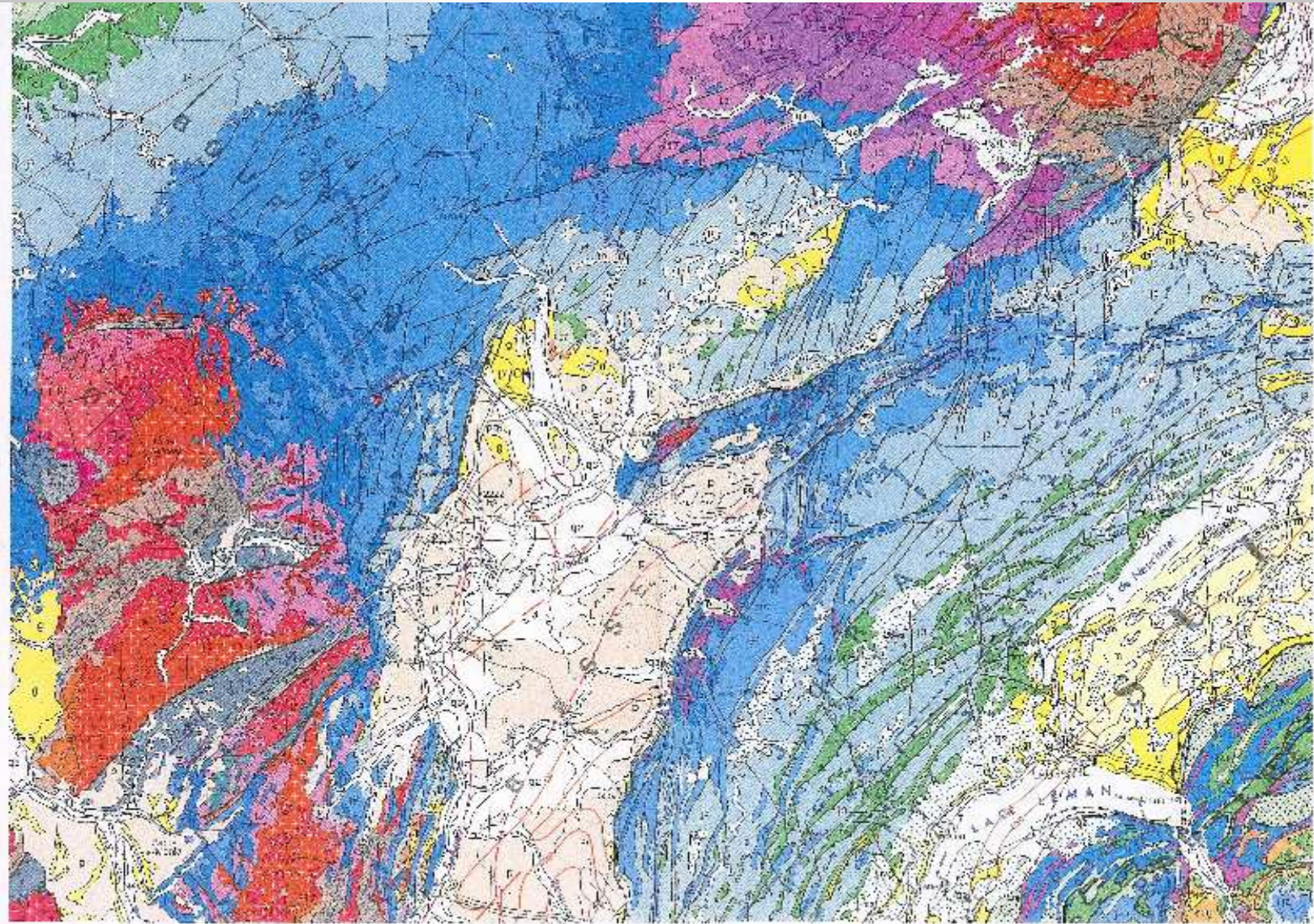
Suzon Torrent

Ouche River

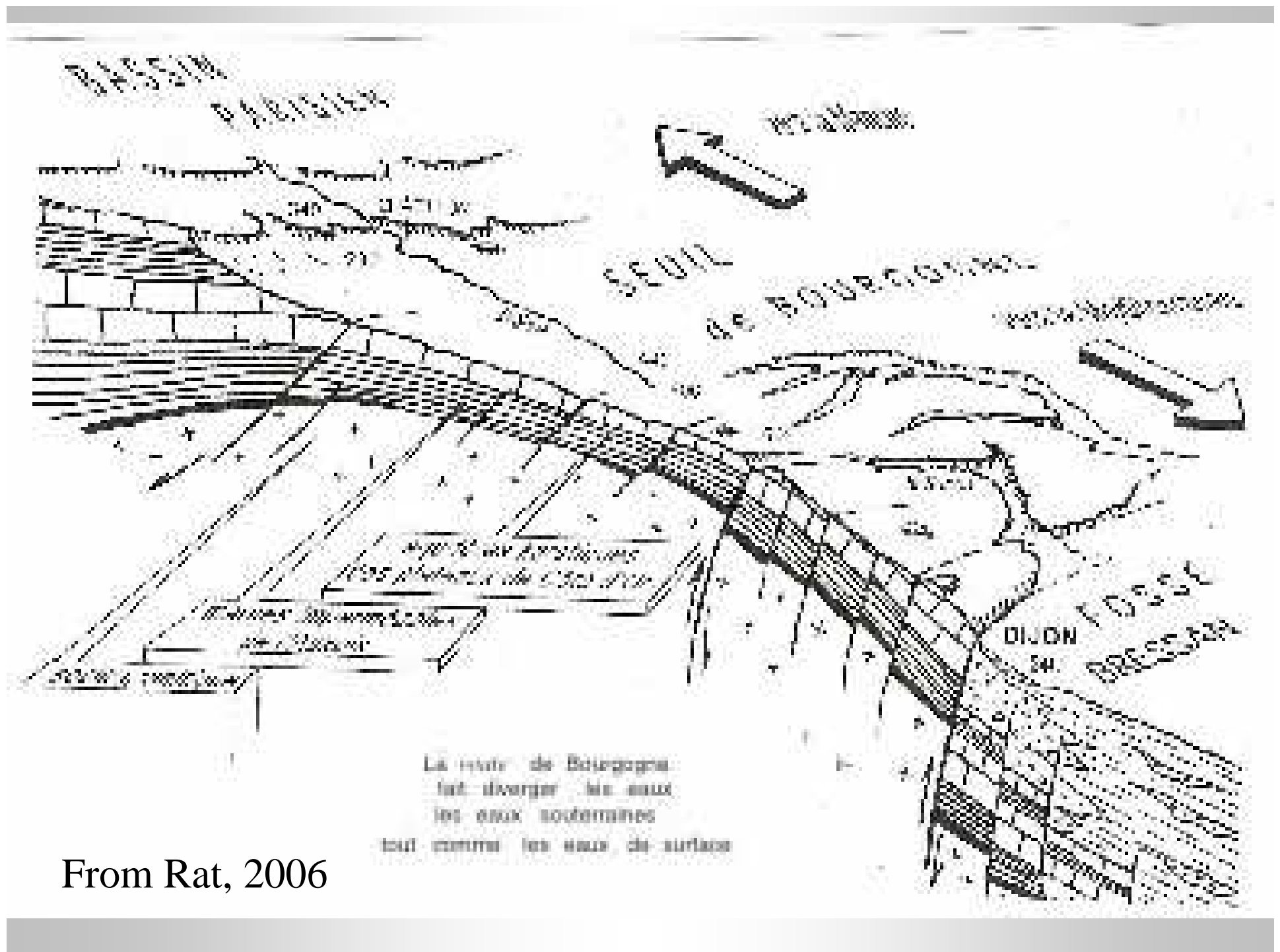
Rosoir Spring (Part 1, Chap. 3)

- Jurassic Limestone
- 8,000 liters/min. ($0.13 \text{ m}^3/\text{s}$)
- Quality of Rosoir Spring water

Also: Dijon's Previous Water Quality
 Calculations for Dijon's water supply
 Choice of water supply
 Artesian wells
 Springs seekers - ancient and modern
 Origin of springs



Carte Geologique de la France, 1:1,000,000



From Rat, 2006

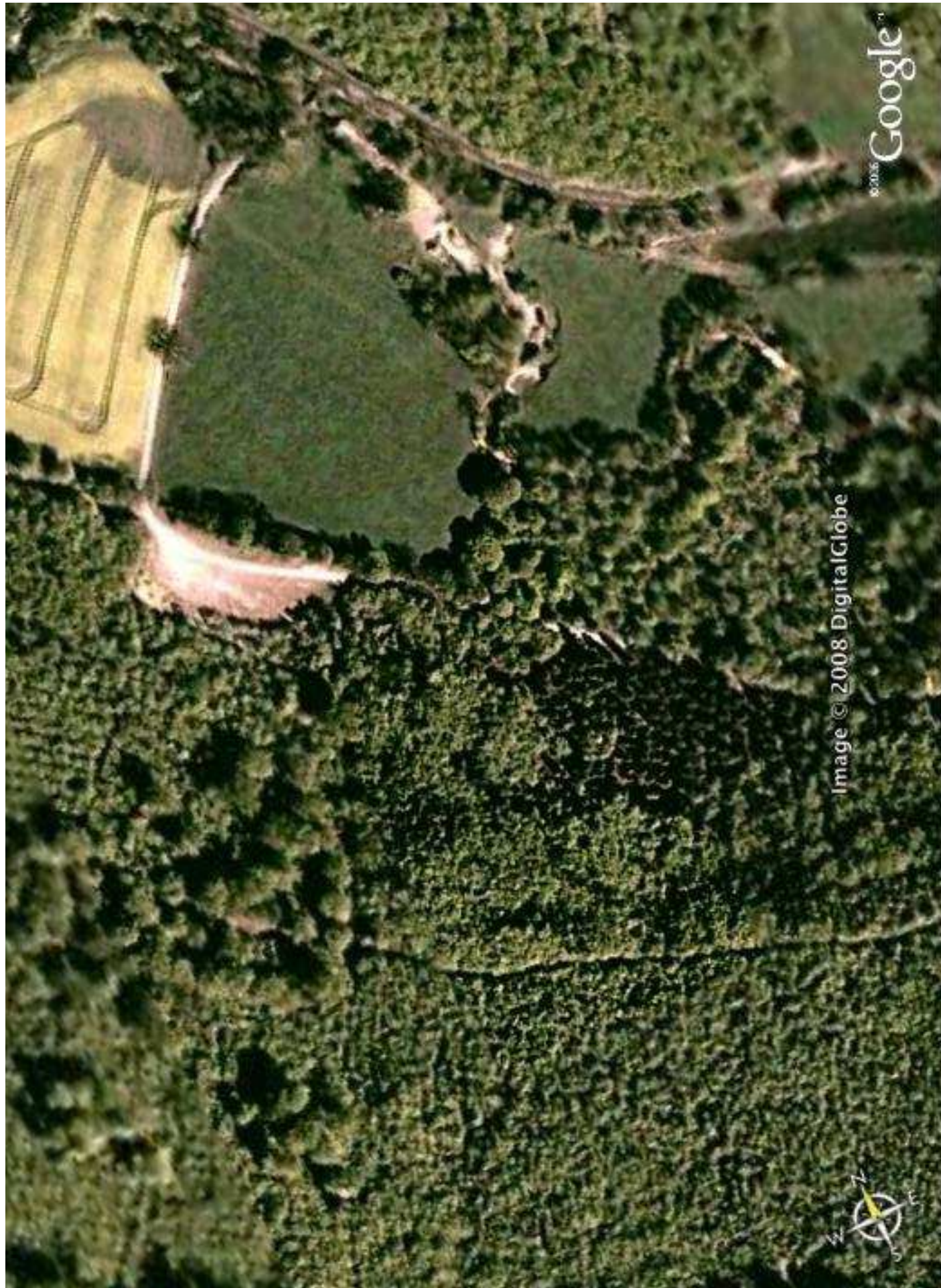


Image © 2008 DigitalGlobe

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Pointer 47° 25'19.77"N 4° 57'54.95" E

Streaming ||||| 100%

Eye alt 1330 ft

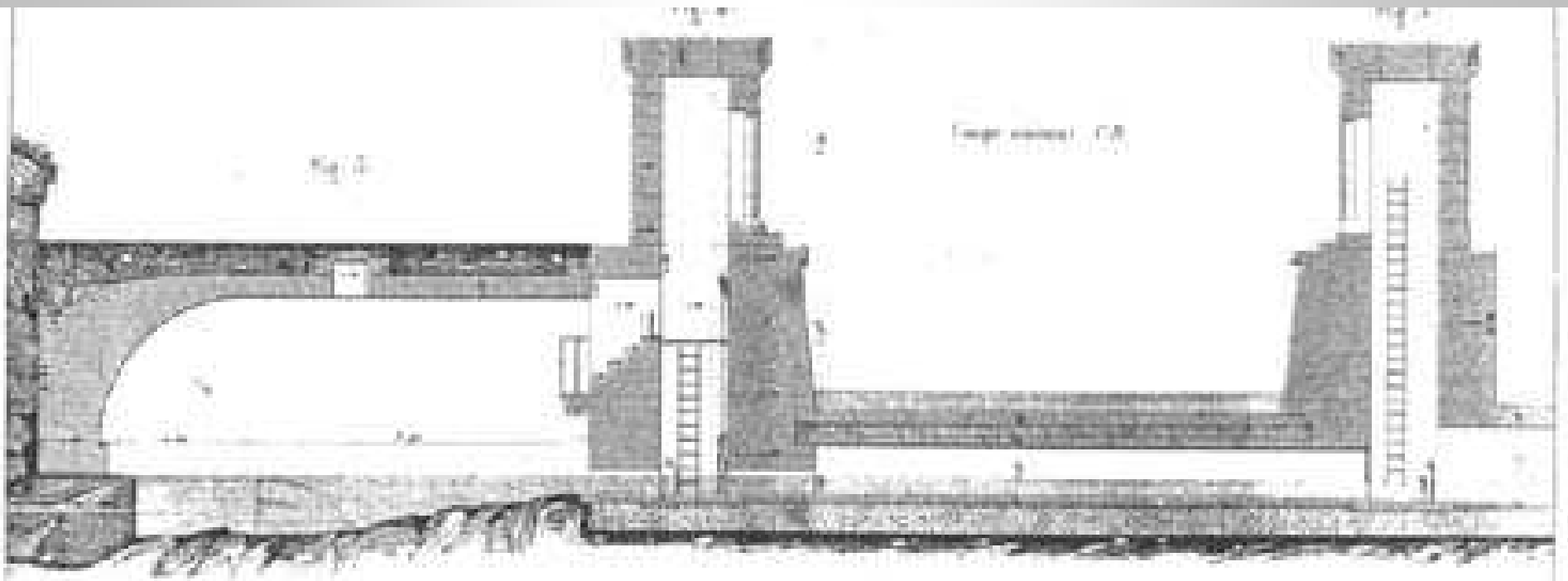
Darcy's Calculation for Dijon's Water Consumption

- 90 liters for domestic uses, garden watering, bathing, industrial establishments and fire fighting
- 60 liters for flushing gutters that run along sidewalks and watering of public streets with carts or hoses
- Total = 150 liters/person/day
- Consumption always tends to increase. (p. 42)
- Compares water usage of London and other cities

Part 2. Construction

- Aqueduct
 - 12.7 km long, masonry, 1 meter underground
- Distribution system - gravity-driven
 - Elevation difference: Spring - reservoir = 46 m
 - 2 reservoirs - 5500 cubic meters total capacity
 - Main artery across Dijon - 1 km long
 - 10 distributor pipes interconnected to form grid
 - 110 - 148 street fountains

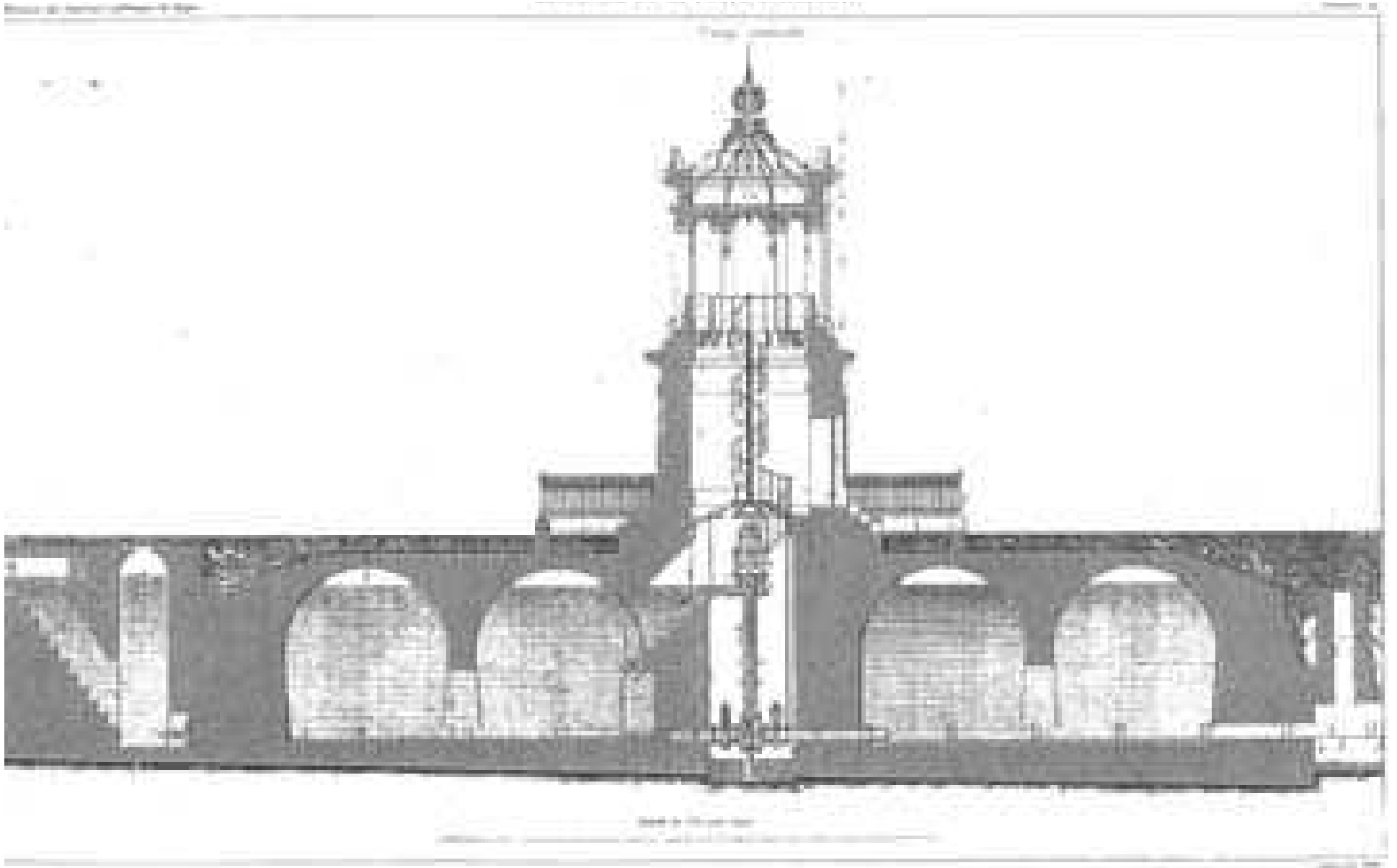
Rosoir Spring





Rosoir Spring





Porte Guillaume Reservoir



Entrance to Porte Guillaume Reservoir

